

Installation, Startup and Commissioning **BUDGETARY**

Presented to:

Derwick Associates Corporation



By:



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1.0 Introduction

ProEnergy Services recognizes the importance and magnitude of this project to Derwick Corporation. ("Derwick") and is ready and committed to make available all of its combined resources, expertise, and experience to ensure that the installation and commissioning of this project is successfully completed. To that end, we have developed this proposal to address the challenges and issues of the project. We wish to highlight the following key elements of the proposed project approach:

- ◆ Assigning a highly experienced team of professionals with experience in optimizing, engineering, designing, procuring materials and equipment, constructing, and commissioning power plants.
- ◆ Formal and systematic development of scope, schedule, responsibility, quality and cost on a task-by-task basis to allocate responsibility and ensure the focus of all parties is on meeting or exceeding established project goals.
- ◆ Developing a Project Quality Plan to address the quality related goals.
- ◆ Implementing proven Project Management approaches to effect proactive control of scope, quality, cost, and schedule; report on progress; identify deviations; forecast trends; take corrective actions when necessary; promote communications; and coordinate the activities of all participants on the project. Progress reporting and project coordination will support the project reporting requirements.
- ◆ Providing a continuous involvement of the key management personnel to provide the oversight, commitment, experience and attention required to ensure successful project completion.
- ◆ Use of local subcontractors as integral team members in support of the project. Our relationship with these organizations will take advantage of opportunities to benefit from local practices, infrastructure and experience with past projects in that region.

2.0 Project Execution Plan

ProEnergy's plan to execute this work is based on industry standards, and our standard processes developed and tested through our experience in performing this type of project. The management of the project will be performed in the United States and at the project site.

The Management team in the United States will provide the Project Manager responsible for the project and the project support functions required to assist the installation team. The support functions provided by the team in the United States includes coordination and logistics, procurement and purchasing, documentation and procedure development, engineering and technical expertise, environmental health and safety, and quality control. The Project Manager will ensure that the installation team is getting sufficient support from these functions to allow the Installation Team to be most effective.

The Installation Management Team at the sites will manage, oversee, and direct the installation of the plants. This team will provide direct management of manpower, material control, documentation control, planning and scheduling, and technical direction to perform the work. The Installation Management Team will provide direct feedback to perform the work. The Installation Management Team will collect the necessary data to properly document the work for warranty, start-up, and maintenance.

3.0 Project Management Team

ProEnergy Services will provide a Project Management Team in the United States to support the on site Installation Team with the following functions:

- Overall Project Management
- Procurement and purchasing services
- Quality Control / Quality Assurance
- Environmental Health and Safety
- Project Scheduling
- Engineering and technical support
- Coordination and logistics
- Human Resources
- Payroll and finance

Project Manager

The Project Manager's primary function is to ensure the project goals are being met. The Project Manager will monitor progress of the project and will ensure the project supports functions are providing the necessary functions required by the Installation

Team throughout the various stages of implementation from design through to completion. The Project Manager has complete responsibility for the project's execution, from contract signing to final acceptance, and will ensure the appropriate company resources are applied to the project to meet the goals set forth.

Installation Manager

The Site Installation Manager will communicate any issues, support needs, technical concerns, project status, and man power needs on a daily basis.

Procurement

ProEnergy will support procurement and purchasing. Any purchases performed through the ProEnergy Procurement and Purchasing group will be invoiced at cost plus 15%.

Records and reports will be maintained and communicated to inform all participants of the status of delivery dates. Any potential deviation from the plan will be flagged as soon as it is identified so that appropriate corrective actions can be discussed and initiated before it can impact the overall schedule.

Quality Control

ProEnergy is committed to accomplishing the installation, commissioning, and start-up of this project within schedule at budgeted cost with high quality and reliability in full compliance with industry codes, engineering standards, and Customer requirements.

The ProEnergy corporate Quality Program will be utilized including our standard procedures and instructions adapted specifically for this project. These procedures have been developed and enhanced through use on past and present successful projects.

This Quality Program provides effective integration, planning, monitoring, and control of the activities performed in all facets of the project. It will provide the framework for effective communication and coordination of the interfaces between the Project Team, Project Suppliers, and the Customer.

Project Scheduling

The overall project schedule will be developed and submitted to the customer for comments. The schedule will be adjusted and resubmitted as the final schedule. ProEnergy will update the schedule on a weekly basis and provide details of any deviations of the original schedule in weekly reports to the customer. The Project Schedule will be updated by a ProEnergy scheduler.

4.0 Installation Management

ProEnergy will provide Installation Management Services to install the units and perform the start-up and commissioning of the plant. The Installation Management team will consist of project management engineering support, technical specialists, quality control, and supervision to perform the work. Documentation and material control will be the responsibility of Derwick.

Included below is our proposed site organization. The site staff will be composed of the key personnel defined below, adjusted to the specific needs of the project as it progresses.

Site Installation Managers are assigned to the sites for installation, startup, and commissioning phases of the project. Their responsibilities include coordinating with the various team members on all aspects of the project effecting installation and startup. The Site Installation Manager's responsibility will also include forming a close working relationship with the Customer and any subcontractors selected to perform the work.

The Site Installation Manager is supported by a staff of individuals experienced in the mechanical/piping, electrical, and instrument and controls disciplines. These individuals will provide rapid resolution of any questions, concerns, or problems that may arise during the project to ensure quality and adherence to schedule.

The Site Installation Manager is responsible for the conduct of all installation related activities. The Site Installation Manager is directly responsible for project work performance and accomplishment of the schedule and goals. Planning and scheduling of site work is vital to the success of any project. The Site Installation Manager forecasts labor manpower requirements, allocates manpower, equipment, and material, and administers the overall installation activities. For this task, he is supported by an experienced staff comprised of the following members. The Derwick Project Manager must work in conjunction with the Site Installation Manager.

The project will be supported by the ProEnergy QA/QC Group. The QA/QC Group will ensure that all ProEnergy and Subcontractor personnel support and comply with the site safety and environmental requirements.

The Mechanical, Instrumentation and Electrical Leads will provide direct planning of the labor for each project task. The Leads will ensure that tasks are being performed properly and any technical data is being captured. The Leads will also be responsible for production and quality of the labor.

The Project Schedule will be updated by a ProEnergy scheduler. The Project Scheduler is responsible for the development of the project schedule and weekly

updates. The Project Scheduler will update the schedule on a weekly basis and provide any deviations to the Installation and Project Manager.

A key element of an effective management program is the communication between all levels of the team. During the installation phase of the Project, communication is accomplished through regularly scheduled meetings. The agenda for these meetings typically include the following:

- ◆ Progress reports from those responsible for the various work tasks.
- ◆ Information concerning material deliveries for planning work.
- ◆ Information concerning quality issues and work plans.
- ◆ Information concerning design issues requiring resolution.
- ◆ Discussions and presentation of plans for the upcoming period.
- ◆ Development of action items and assignment of responsibility for resolution.
- ◆ Discussion of any special site activities such as heavy lifts, etc.
- ◆ Later in the project, startup and commissioning plans will be presented at these meetings.

The ProEnergy Site Installation Manager will be the primary point of contact on the project. The core management team will set out all procedures and controls required for coordinating and routing documentation, design and engineering information, technical interfaces and correspondence as required to ensure the following:

- ◆ Planning and scheduling all project activities.
- ◆ Coordination of project activities.
- ◆ Coordination of project interfaces.
- ◆ Monitor and report all project activities.
- ◆ Produce progress reports and schedules.
- ◆ Provide site Management and Coordination.
- ◆ Providing contract management.

ProEnergy Installation Personnel include the following:

- ◆ Installation Manager (at each site)
- ◆ Lead Electrical (at each site)
- ◆ Lead Mechanical (at each site)
- ◆ Electrician (2 at each site)
- ◆ Millwright/Mechanic (2 at each site)
- ◆ Welder/Fitter (3 at each site)
- ◆ I&C Technicians (at each site)
- ◆ Civil Craft (3 at each site)

5.0 Startup and Commissioning

This section describes our technical approach to the startup and commissioning phase of the project.

5.1 Phase I – Develop Commissioning Procedures and Documentation

This phase represents the beginning of the startup and commissioning activities on the project. ProEnergy's first action will be to collect all project reference material to support execution of Phase I activities. This reference material includes but is not limited to:

- Equipment Lists
- Instrumentation Lists
- Piping and Instrumentation Diagrams (P&IDs)
- Electrical One-Line/Elementary Diagrams
- System/Control Design Descriptions
- Project Schedule
- Vendor Manuals

After collecting sufficient reference material to begin work, the assembled Phase I Team will then perform the tasks specified below. Please note that specified tasks may be performed in parallel, as best meets the needs of the project.

Develop Commissioning Manual

A comprehensive Commissioning Manual for the startup and commissioning of the plant will be developed specific to this facility. This important document provides administrative and management guidelines concerning completion of the project from construction, through commissioning and startup, into commercial operation. Contents include (but not limited to) the following:

- Introduction
- Purpose
- Scope of Commissioning Manual
- Jobsite Organization and Responsibilities
- Commissioning Activities
- Guidelines for Controlling Cost and Schedule
- Periodic Meeting Requirements
- Periodic Reporting Requirements
- Guidelines for Problem Resolution

After development, the Commissioning Manual will be issued and used by all project personnel associated with the startup and commissioning effort. Periodic updates to the Commissioning Manual will be made as required.

Review and Compile Project Technical Data

ProEnergy will review the project reference material previously collected. After review, reference material will be organized and catalogued to create a Technical Library for use during startup and commissioning. Updates to project reference material must be distributed to the Startup and Commissioning Team, as such updates are issued, to ensure the Technical Library is up to date and to avoid risks and delays arising from incomplete, inaccurate, or obsolete information. The Technical Library, with included updates, will be shipped to the work site at the time of Startup Manager's mobilization.

Develop System Startup Boundaries

ProEnergy will assess and/or develop system boundaries to establish a logical approach to commissioning and startup. The purpose of this task is to identify boundary and/or termination points for performance of system flushing, cleaning, operating tests, continuity tests, and system by system commissioning/startup. Establishment of these boundaries also allows the construction forces to focus completion efforts on the required system within these clear and concise boundaries.

Develop Startup and Commissioning Schedule

A detailed startup and commissioning schedule for the project will be developed. This schedule will be based on system startup and commissioning boundaries previously identified, and any milestone dates provided by the Customer. The schedule will be developed in computer software and updated on a weekly basis.

Develop System Commissioning Procedures

The required commissioning procedures will be developed for each plant system, based on the startup and commissioning boundaries previously identified. Each procedure will contain safety information, step-by-step checklists, and procedural text. The format of each procedure will be consistent with established ProEnergy corporate standards.

Develop System Turnover Packages

System Turnover Packages will be developed for each plant system. Format and content of each turnover package will be consistent with established ProEnergy corporate standards and Customer project requirements. After initial

development, each turnover package will contain forms for recording system parameters during testing, commissioning, and starting up the associated system. The package will also contain drawings for identification of associated system boundaries. As the plant moves through the startup and commissioning process, forms included in each turnover package will be filled in with system data. System punch-lists will be added, along with applicable system records supplied by the construction organization. After all startup and commissioning activities are completed, the turnover packages will be finalized and delivered to the Customer.

Perform Operability/Commissioning Review

As a final task for Phase I, ProEnergy will perform an Operability/Commissioning Review to determine:

- Potential safety issues based on plant design.
- System maintainability based on plant design.
- Ease of project/system/component startup and commissioning.
- System boundary isolations.
- Operability of plant systems and controls.

Results of the Operability/Commissioning Review will be forwarded to the Customer.

5.2 Phase II - Assemble and Mobilize Site Team

The following tasks will be completed during this phase.

Mobilize Startup Manager

The selected Startup Manager for the project will be the first person mobilized to site to initiate the on-site portion of the startup and commissioning effort.

Finalize Mobilization Schedule for the Site Team

After reviewing all Phase I documentation and evaluating the construction schedule (planned and actual), the Startup Manager will review the proposed site mobilization schedule for members of the balance of the startup/commissioning team.

Select Site Team Members

Supported by ProEnergy's corporate staff, the Startup Manager will identify and select best qualified personnel to serve on the site startup and commissioning team. Persons filling "Lead" positions will be selected first.

Identify Tools and Test Equipment

After reviewing Phase I documentation (including reference material), the Startup Manager will identify tools and test equipment necessary to support startup and commissioning and commissioning. This list of tools and test equipment will be made available to the Customer prior to site mobilization.

Mobilize Selected Team to Site

After completion of the above tasks, ProEnergy will begin mobilization of the startup and commissioning team to site, in accordance with the mobilization schedule previously developed.

5.3 Phase III – Commission and Startup the Plant

Major tasks to be completed in this phase include:

Develop Punch-List Structure and Priorities

The Startup Manager will develop a priority scheme for punch-listing plant systems and associated equipment. These established priorities will be developed based on the commissioning schedule impact of each specific plant system turnover.

Walk Down and Punch-List Plant Systems

Based on the priority developed in the preceding task and the mechanical completion status of each plant system, the assigned Startup Engineer will perform a walk down to verify the system is ready for the start of commissioning. Observed construction deficiencies will be documented and prioritized on punch-lists. Any high priority punch-list items which would prevent the start of commissioning will be communicated to the construction organization for resolution. If/when there are no such items remaining, the system will be accepted by the startup and commissioning team for the start of commissioning.

Commission and Startup Plant Systems and Equipment

For each system, the assigned Startup Engineer will commission the associated pieces of equipment in accordance with the previously developed Commissioning Procedure. This work will be executed in coordination with vendor representatives, the construction organization, and plant operations personnel.

Support Plant Testing and Initial Operation

After the commissioning and startup of all plant systems has been completed, the startup and commissioning team will work with designated operations personnel to perform integrated startup of the plant. ProEnergy will perform electrical testing at the site. During this time frame, ProEnergy team members will be available to advise plant operations personnel on proper sequence and methods of unit operations, including startup, normal operation, and shutdown. ProEnergy team members will also participate in responding to abnormal operating conditions (alarms, trips, etc.) and will assist in troubleshooting operational problems.

The ProEnergy startup and commissioning team will continue to support integrated plant operation throughout performance and/or reliability tests to achieve commercial operation.

During this portion of the commissioning effort, particular attention will be paid to the prevention of unintentional unit trips. Our entire startup and commissioning program is based on the intentional usage of detailed, well researched, written procedures. This procedure based process coupled with a strong safety and quality program, well trained personnel, and aggressive management oversight will ensure that we meet or exceed unintentional unit trip and personnel safety goals.

Resolve Punch-List Items

For each plant system, the assigned Startup Engineer will work with the construction organization and plant operations personnel to complete/resolve any remaining punch-list items within the startup and commissioning team's scope of responsibility.

Finalize Startup Documentation

The startup and commissioning team will finalize all startup and commissioning documentation not previously delivered to the Customer. Such documentation is expected to include control logic red-lines. The ProEnergy startup and commissioning team will demobilize from the plant site after this task has been completed.

5.4 Startup Personnel

ProEnergy will provide the following startup personnel:

- Startup Manager
- Lead Electrical
- Lead Mechanical
- Lead I&C
- Planner/Scheduler
- I&C Technician
- TA's Controls & Mechanical (2)
- Turnover Coordinator

6.0 Pricing

ProEnergy will perform installation, commissioning, and start-up of the one 3xTM2500 plant located in Venezuela for the fixed prices outlined below.

6.1 Installation Pricing

ProEnergy will perform the installation for the following pricing:

Item	Total (US\$)
Labor	1,445,368.22
T&L Expenses	393,692.25
Equipment	81,036.50
Office / Consumables	28,385.76
Manuals / Commissioning Procedures	42,332.50
Materials	3,890,834.50
Misc & Contingency - 5%	294,082.67
	0.00
Total Estimate Installation Costs	6,175,732.40

Assumptions / Clarifications:

- Air and oil filters are included in pricing.
- First fill of oils is included in pricing.
- No SMEC and SORT are included.
- No tanks are included.
- No import duties are included.
- No drainage / ground works are included.
- No performance testing is included.

6.2 Startup and Commissioning Pricing

ProEnergy will perform startup and commissioning for the following pricing:

Item	Total (US\$)
Labor	377,345.86
T&L Expenses	246,375.15
Performance Testing / Equipment	14,514.00
Office / Consumables	114,573.52
Manuals / Commissioning Procedures	42,332.50
	0.00
Total Estimated Start Up Costs	795,141.02

7.0 Terms and Conditions

This proposal has been prepared without knowledge of site location. This proposal is a price reference based on minimum engineering site assumptions. A final detail proposal should be elaborate base on site location, conditions and final engineering.

This proposal shall expire within thirty (30) days; provided, however, the terms of this Section and the obligation to treat this proposal as confidential and that it cannot be shared with any third party without the prior written consent of ProEnergy shall survive.

Invoices shall be generated based on mutually agreed upon milestones and shall be due and payable within ten (10) days of receipt.

Notwithstanding any term in this proposal or any resulting purchase order/contract to the contrary, in no event shall ProEnergy be responsible for consequential or incidental damages resulting from the use of this proposal or the performance of any work by ProEnergy in relation to this proposal. This proposal shall be subject to the terms and conditions to be mutually agreed upon between ProEnergy and Derwick.

FOLLOW UP

Please contact the following person at ProEnergy for information regarding this proposal:

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